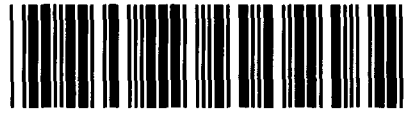




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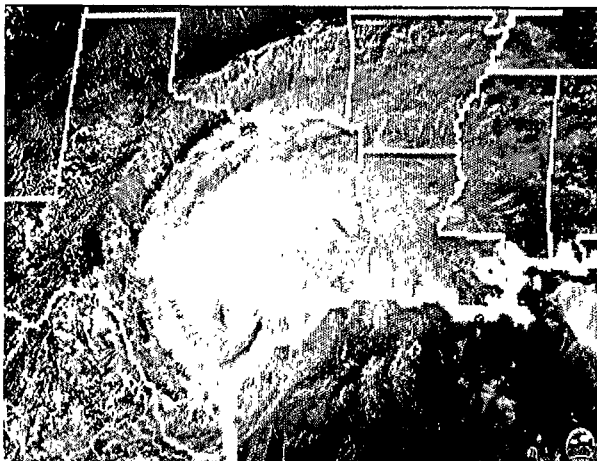
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PUBLIC UTILITY COMMISSION
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HURRICANE HARVEY

Impact on Electric Utilities

Public Utility Commission of Texas

Staff Report

August 30, 2017

Corrected on September 8, 2017

Project No. 47552

Hurricane Harvey's Impact on Electric Utilities in Texas

Hurricane Harvey made landfall in Rockport on Friday night, August 25, 2017 as a Category 4 hurricane with winds of up to 130 mph. The wind speeds dropped quickly, but the rainfall persisted as the storm slowly moved northeast to Houston. Before it exited Texas the following Wednesday, the storm caused widespread flooding.

Wind damage to utility facilities was concentrated in the area where Harvey initially made landfall,

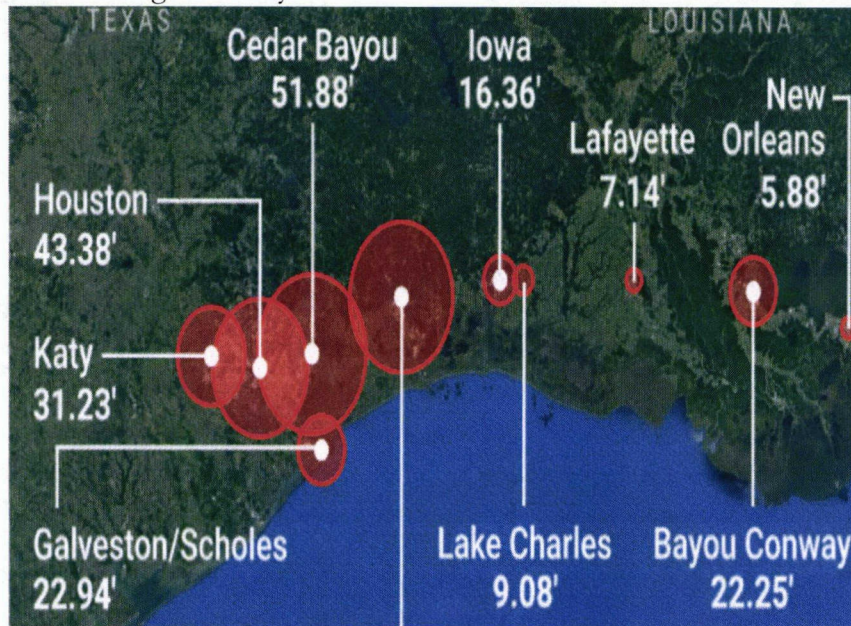


Figure 1: Maximum rainfall totals as of August 30, 2017

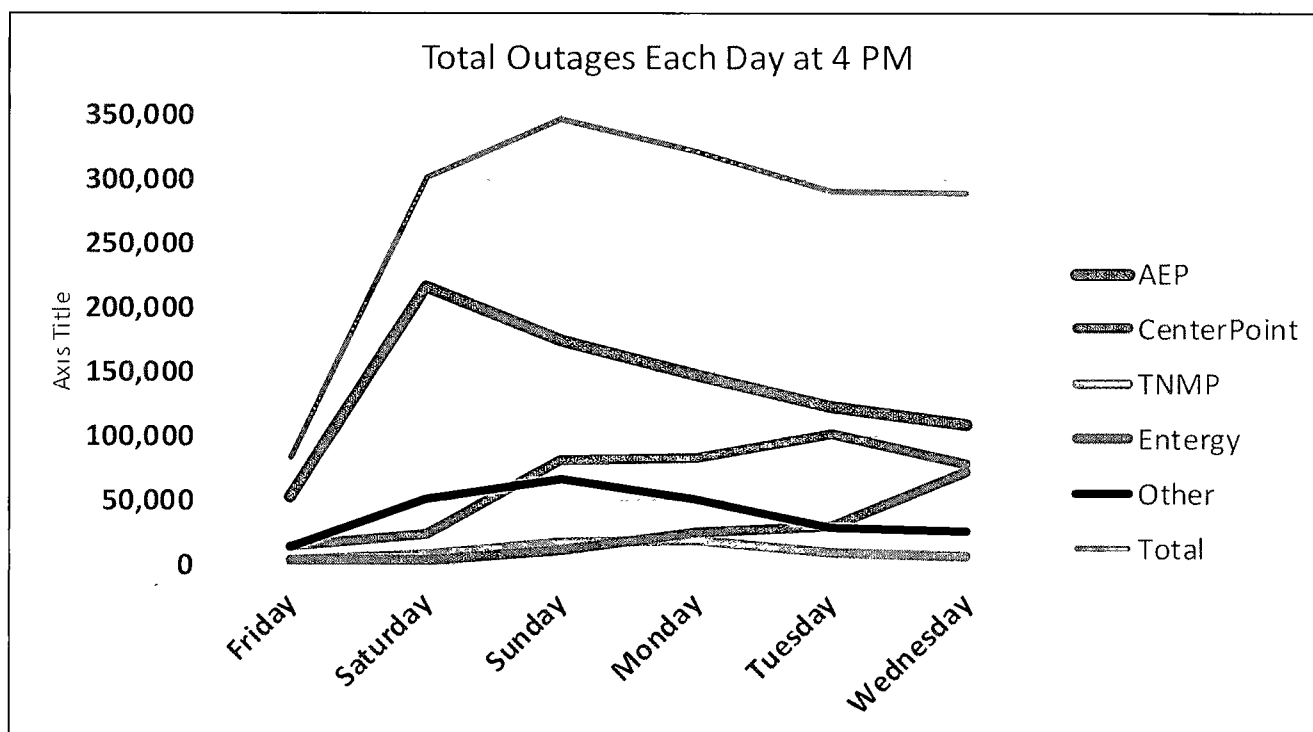
whereas damage from the flooding was widespread. The utilities in the area of Corpus Christi to San Antonio have restored power to the majority of their customers who experienced outages from the storm, except for AEP Texas and Victoria Electric Cooperative. After Saturday, CenterPoint Energy, Texas New Mexico Power (TNMP), and Entergy Texas experienced increased outages, and due to the rising flood waters these utilities are currently restoring customers when able, but there are

many areas that are inaccessible.

Total outages at any particular time were around 300,000 throughout the storm.¹ The decrease in outages for AEP were offset by increases for CenterPoint and Entergy.

The following two charts provide information on outages, utility facility damage, and service restoration. The outage information provides the number of outages at particular points in time rather than a cumulative total. As a result, these outage statistics do not reveal the number of customers whose service was restored during the storm. For example, the first chart shows CenterPoint's total outages at 4 PM each day rising to around 100,000 by Tuesday and modestly declining on Wednesday. However, during that same time, CenterPoint restored service to around 700,000 customers. In other words, the cumulative number of outages for the utilities are substantially higher than the daily snapshot of outages that the chart depicts.

¹ Outage numbers are approximate, because Commission staff does not have outage statistics for some small utilities.



Company Name	AEP Texas	CenterPoint	Entergy	TNMP
Peak Outages/Outages as of 4 PM on Wednesday	220,000 / 133,600	100,000 / 79,611	82,000 / 64,191	18,000 / 6,088
Damaged Structures	2,100 utility poles and 55 transmission structures	Assessment still ongoing due to flooding conditions.	Assessment still ongoing due to flooding conditions.	Assessment still ongoing due to flooding conditions.
Restoration	55 transmission lines and 21 substations restored.	A detailed assessment will be available when water recedes.	A detailed assessment will be available when water recedes.	A detailed assessment will be available when water recedes.
Restoration Crews	3,600 personnel Additional 1,000 within a few days.	3,300 personnel	1,453 personnel	530 personnel

On Wednesday, August 30, AEP projected that it would restore service to 95% of its customers in Corpus Christi that day and by Saturday for its other customers that are not in areas where the damage is most severe. In areas where damage is most severe, such as Rockport, AEP expects to have restoration projections by Thursday. Because of continued flooding, CenterPoint, Entergy, and TNMP have not issued extensive restoration projections.

Outages experienced by electric cooperatives peaked at 52,534 on Saturday, August 26. Total outages for electric cooperatives for which information is available were 24,570 on Wednesday, August 30 around 4 p.m. The cooperative that has been affected the most by the storm is Victoria Electric Cooperative, which had outages to 100% of its 21,835 delivery points on Saturday. As of 5:30 p.m. on Wednesday, it had restored 9,224 delivery points, and restoration of service to many other of its delivery points is dependent on the repair of transmission facilities owned by South Texas Electric Cooperative.

Municipally owned utilities mostly avoided the worst parts of the storm. Outages experienced by municipally owned utilities peaked at 80,000 customers on Sunday. By Wednesday, less than 1,000 outages were attributed to the storm.

Below are two pictures from the storm:

AEP Texas – Rockport



CenterPoint – Houston

